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Mr. James Nasmyth, in a letter to Mr. De la Rue, states that he observed the occultation of *Jupiter*, on Jan. 2, very favourably at Doncaster with one of his 10-inch metals, and a power of 150. He watched anxiously for any indications of a lunar atmosphere, and noticed that at the immersion, instead of any decrease of the brightness of the disk at the time of intersection, there was *visibly* more light there, and at the emersion a dark shadow in contiguity to the bright limb of the moon. Both of these appearances Mr. Nasmyth, no doubt correctly, attributes to the usual effect of contrast. He saw no symptoms of distortion.

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## *Note on the Lunar Occultation of* 27 *Arietis, on* 1857, *Feb.* 28; *observed at Haddenham, Bucks.* By the Rev. W. R. Dawes.

"The lunar occultation of 27 *Arietis*, a star of the sixth magnitude, as seen from this place on the 28th of February last, afforded a fine opportunity of watching the effect of an extremely oblique approach of the moon's obscure limb, which was within a few seconds of the star for more than a minute. The 8-inch equatoreal refractor in my observatory having been directed to the star with a power of 172, I carefully noted the appearance of its disk for about ten minutes before the occultation, that my eye might become familiar with the variations of its appearance produced by the condition of our atmosphere. These, however, were not great, the air being generally in a very favourable state, with only occasional and very transient fits of indistinctness. The disk of the star was very sharply defined and steady. To assist my eye in judging of any extraordinary change in its apparent place, I brought it to one of the angles formed by two thick spider's webs crossing in the centre of the field, and within a distance from them of about two of its own diameters; keeping it there by the equable motion of the driving-clock. The moon's obscure limb was distinctly visible. Not the slightest change took place in the star's position, or brightness, or steadiness, or sharpness of definition, while in close proximity to the moon; and at length it disappeared instantaneously and without any warning whatever.

"In my account of the lunar occultation of *Jupiter* in January last, I mentioned a bluish fringe attached to the moon's bright limb, and visible at the reappearance of the planet across its disk. This, from its colour, I attributed to the secondary spectrum of the object-glass. A similar dark fringe was noticed also by Mr. Simms on the same occasion; and, though the colour is not mentioned, this might also be attributed to the same cause. But, as the same phenomenon, so far as its darkness is concerned, was also seen by Mr. Lassell, who observed with his large reflector, some other cause must have contributed in a great degree to produce it; and it has occurred to me, that the shading, apart from

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the colour, might be simply the effect of the great contrast between the brilliancy of the moon's limb and the comparative paleness of the planet. The phenomenon may be imitated artificially by placing a white disk close behind the edge of a bright flame; when a very narrow shading, as if with pencil, darkest close to the flame, and rapidly becoming lighter, will appear across the disk.

"It seems to be obviously impossible that the cause of the dark line on the planet should be any atmospheric or other substance attached to the moon. No appearance of the kind was seen at *Jupiter's* occultation at the dark limb; the disk being uniformly bright up to the very edge of the moon, the minutest inequalities of which were plainly visible and sharply defined. Yet it is especially, and perhaps only, at the dark edge that any such effect of a lunar atmosphere might be expected to be discernible: for at the bright edge the atmosphere would itself be highly illuminated; and, therefore, though if of considerable density it might impair the clear definition of the edges and belts of *Jupiter*, it is difficult to conceive how it could appear upon its disk as a dark shading.—The unaltered brightness of very small stars occulted at the dark edge of the young moon, or during a total lunar eclipse, would seem also conclusively to prove that there can exist no atmospheric envelope capable of producing any effects visible to us."

*Haddenham, Bucks*, 1857, *March* 11.

Mr. Hippisley, of Ston Easton, near Bath, in a paper which we had not space to notice before, relates an experiment which he lately performed for his own satisfaction, illustrative of the projection of stars on the disk of the moon. He formed an artificial star with a candle placed at a distance of about 185 yards, and an artificial moon with a disk of card attached to a rod applied to the end of his telescope. Illuminating his artificial moon, he was able to make the relative brightnesses of the artificial moon and star nearly in the proportion of nature, and to make the appulse as gradual as he pleased. He thus had an opportunity, he says, of witnessing the overlapping of the two images at leisure, and of convincing himself of the sufficiency of optical considerations for the explanation of what he saw.

On the same subject, but referring more especially to Captain Jacob's note published in page 17 of the current volume, Mr. Lassell mentions an occultation of *Aldebaran*, as far back as the 22d of August 1829, in which he witnessed a distinct entry of the star on to the moon's disk. In the extract of his diary, which was

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